UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,785	12/29/2000	John Nelson	41934/23838	4216

23973 7590 07/07/2003

DRINKER BIDDLE & REATH
ONE LOGAN SQUARE
18TH AND CHERRY STREETS
PHILADELPHIA, PA 19103-6996

EXAMINER
KAM, CHIH MIN

ART UNIT	PAPER NUMBER
1653	29

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/673,785	Applicant(s) NELSON ET AL.	
	Examiner Chih-Min Kam	Art Unit 1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-4,9,10 and 19-23* is/are allowed.

6)☒ Claim(s) *5-8,12-18 and 24-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The Request for Continued Examination (RCE) filed on January 27, 2003 (Paper No. 22) under 37 CFR 1.114 is acknowledged. An action on the RCE follows.

Status of the Claims

2. Claims 1-10 and 12-27 are pending.

Applicants' amendment filed January 23, 2003 (Paper Nos. 23) is acknowledged, and applicants' response has been fully considered. Claim 11 has been cancelled, claims 5-8, 13, 14, 17 and 18 have been amended, and new claims 19-27 have been added. Therefore, claims 1-10 and 12-27 are examined.

Sequence Listing

3. A paper copy of sequence listing and CRF filed May 19, 2003 (Paper No. 28) is acknowledged, and CRF has been entered.

4. A substituted specification filed April 28, 2003 (paper No. 27) has been entered.

Claim Rejections - 35 USC § 112

5. The previous rejection of claims 1-18, under 35 U.S.C.112, second paragraph, is withdrawn in view of applicants' amendment to the claim, applicants' cancellation of the claim, and applicants' response at pages 6-10 in Paper No. 23.

Informalities

The disclosure is objected to because of the following informalities:

6. The specification indicates Table 2 in Paragraphs [0090] and [0096], however, there is no Table 2 listed. Appropriate correction is required.

7. The specification indicates peptide X (SEQ ID NO:25) has substitution of cysteine at P10 with alanine in paragraph [0091], which is not correct because it is peptide IX (SEQ ID NO:24) having such substitution (See Table 1b at page 10). Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 5-8, 12-18 and 24-27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of binding a peptide factor as an antagonist or agonist to a laminin receptor *in vitro*, the method comprising administering to a cell culture a composition of a peptide factor comprising amino acid residues 33-42 of murine epidermal growth factor (mEGF), wherein the peptide factor has at least one tyrosine of mEGF being substituted with a tyrosine analog or at least one arginine of mEGF being substituted with an arginine analog, and determining the binding of the peptide factor to the laminin receptor as an antagonist or agonist, does not reasonably provide enablement for a method of binding a peptide factor as an antagonist or agonist to a laminin receptor *in vivo*, the method comprising administering to a cell or patient a medicament of a peptide factor comprising amino acid residues 33-42 of mEGF, wherein the peptide factor has at least one tyrosine of mEGF being substituted with a tyrosine analog or at least one arginine of mEGF being substituted with an arginine analog, and determining the binding of the peptide factor to the laminin receptor as an antagonist or agonist. The specification does not enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Claims 5-8, 12-18 and 24-27 encompass a method of binding a peptide factor as an antagonist (claims 5, 12-14, 24) or agonist (claims 6-8, 15-18 and 25-27) to a laminin receptor, the method comprising administering a medicament of a peptide factor comprising amino acid residues 33-42 of mEGF, wherein the peptide factor has at least one tyrosine of mEGF being substituted with a tyrosine analog or at least one arginine of mEGF being substituted with an arginine analog. The specification, however, only discloses cursory conclusions without data supporting the findings, which state that a peptide factor derived from amino acid residues 33-42 of mEGF with at least one substitution of tyrosine at position 5 or of arginine at position 9 can be used as a medicament for treatment of angiogenic disease via its binding to 67 kDa laminin receptor (pages 2-3). There are no indicia that the present application enables the full scope in view of a method of binding a peptide factor as an antagonist or agonist to a laminin receptor as discussed in the stated rejection. The present application provides no indicia and no teaching/guidance as to how the full scope of the claims is enabled. The factors considered in determining whether undue experimentation is required, are summarized in In re Wands (858 F2d at 731,737, 8 USPQ2d at 1400,1404 (Fed. Cir.1988)). The factors most relevant to this rejection are the breath of the claims, the absence of working examples, the state of the prior art and relative skill of those in the art, the unpredictability of the art, the nature of the art, the amount of direction or guidance presented, and the amount of experimentation necessary.

(1). The breath of the claims:

The breath of the claims is broad and encompasses unspecified variants regarding the treating conditions for binding of the modified peptide factors to laminin receptor in vivo and the effects of these peptide factors, which are not adequately described or demonstrated in the specification.

(2). The absence or presence of working examples:

There are no working examples indicating the claimed methods in association with the variants except for in vitro screening method for receptor interaction, cell adhesion and motility properties (Example 2).

(3). The state of the prior art and relative skill of those in the art:

The prior art (Nelson et al., J. Biol. Chem. 271, 26179-26186 (1996)) indicates a laminin-antagonist peptide comprising amino acid residues 33-42 of mEGF interacts with a 67 kDa laminin receptor of breast cancer and endothelial cell. However, the general knowledge and level of the skill in the art do not supplement the omitted description, the specification needs to provide specific teachings on the treating conditions for binding of the modified peptide factors to laminin receptor in vivo and the effects of these peptide factors to be considered enabling for variants.

(4). Predictability or unpredictability of the art:

The claims encompass a method of binding a modified peptide factor derived from residues 33-42 of mEGF as an antagonist or agonist to a laminin receptor, however, the treating conditions and the in vivo effects of these peptide factors are not adequately described in the specification, the invention is highly unpredictable regarding the outcome of the treatment.

(5). The amount of direction or guidance presented and the quantity of experimentation necessary:

The claims are directed to a method of binding a peptide factor as an antagonist or agonist to a laminin receptor, the method comprising administering a medicament of a peptide factor comprising amino acid residues 33-42 of mEGF having at least one tyrosine of mEGF substituted with a tyrosine analog or at least one arginine of mEGF substituted with an arginine analog. The specification indicates a series of peptides (Tables 1a and 1b) derived from mEGF(33-42) have been synthesized and used for testing receptor interaction with laminin receptor, cell adhesion and motility properties in vitro (pages 8-20, Example 2), and amino acid residues at certain positions are found to be essential for antagonist activity, e.g., the H-bonding between tyrosine (P5) and the arginine (P9) (paragraph 0094). However, the specification has not demonstrated the binding of various peptide factors to laminin receptor in vivo and the effects of these peptide factors. Moreover, there are no working examples indicating the treating conditions such as the dosage for in vivo treatment, nor has shown the effects of these peptide factors. Since the specification fails to provide sufficient teachings on the in vivo treating conditions, it is necessary to have additional guidance and to carry out further experimentation to assess the effect of these peptide factors.

(6). Nature of the Invention

The scope of the claims encompasses a method of binding a modified peptide factor derived from residues 33-42 of mEGF as an antagonist or agonist to a laminin receptor, but the specification does not demonstrate the in vivo binding effect of the peptide factor. Thus, the disclosure is not enabling for the reasons discussed above.

In summary, the scope of the claim is broader than the enabling disclosure. The working examples do not demonstrate the outcome of the treatment, which is unpredictable, and the teaching in the specification is limited, therefore, it is necessary to have additional guidance and to carry out further experimentation to assess the in vivo binding effect of the modified peptide factor.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 5-8, 12-18 and 24-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claims 5-8, 12-18 and 24-27 are indefinite because the claim recites administering a medicament comprising the peptide factor, however, it does not indicate to what the medicament is administered, e.g., is it administered to a patient, a cell or a cell culture. The claim also recites the step of binding the peptide factor to the laminin receptor, but the claim does not indicate how the peptide factor is identified as antagonist or agonist, thus, it is not clear how to identify the peptide factor as an antagonist or agonist. Claims 7, 8, 13-18, 26 and 27 are included in this rejection for being dependent on a rejected claim and not correcting the deficiency of the claim from which they depend.

Conclusions

11. Claims 5-8, 12-18 and 24-27 are rejected, it appears claims 1-4, 9, 10 and 19-23 are free of prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Min Kam whose telephone number is (703) 308-9437. The examiner can normally be reached on 8.00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low, Ph. D. can be reached on (703) 308-2923. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-0294 for regular communications and (703) 308-4227 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Chih-Min Kam, Ph. D. CMK
Patent Examiner

***

July 5, 2003

CHRISTOPHER S. F. LOW
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600